

# AMERICAN VETERINARY REVIEW,

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## ORIGINAL ARTICLES.

### THE TRUE POSITION OF VETERINARY SCIENCE, AND THE REQUIREMENTS NECESSARY TO ITS PROPER STUDY.

#### INTRODUCTORY LECTURE,

*Delivered at the opening of the Winter Session of the American Veterinary College,  
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BY

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*Gentlemen* :—We read, in the history of the ancient Egyptians, that in many of their magnificent temples, whose monumental ruins still exist, there stood in the inmost recesses a statue carved in stone. The figure was that of a female, and the face was covered by a long, heavy veil that completely concealed her features. On the forehead was an inscription, which translated, read thus: "*I am what I am, and no mortal has ever yet uncovered my face.*" No words that have ever been written express a more profound and far-reaching truth than those. The goddess Isis, whom the figure represented, was intended to personify nature, and the veil that draped its folds over her features expressed the impenetrable mystery that surrounded her.

It is also related that pilgrims came from far and near to wor-

ship this image. Thousands traveled over land and sea, and underwent incredible hardships to stand in overpowering awe before it, and pay their tributes of devotion and respect. Many spent their whole lives in trying to catch a glimpse of her features, and penetrate the mystery of those words that seemed so pregnant with meaning. Numerous priests devoted themselves to the rites of her worship, and to the instruction of those who were still uninitiated but wished to be enrolled among the legions of her votaries.

In those days it was considered a title to honor to be a priest devoted to this worship, and many years of hard and earnest preparation were necessary to fit the devotee to become worthy of the dignity. But, it is said, that after he was once admitted, the pleasure of the pursuit of his vocation, and the joy of the possession of those secrets reserved for the ardent followers of the cause, fully compensated him for all his previous hardships.

Thousands of years have elapsed since then, but things have not changed. We to-day are, in this respect, the ancient Egyptians, and still stand before the mysterious figure, wrapt in awe and admiration, and marvel at that sublime inscription,—“*I am what I am, and no mortal has ever yet uncovered my face.*” Who can say that he has penetrated the secret of nature, that he has uncovered her face, that he has as yet lifted that veil which conceals the spring, the source, the cause of what we to-day call nature, and that they symbolized by the statue of Isis!

To-day, in the nineteenth century, the same conditions exist. We recognize above, beneath, and around us an all-pervading force that is shrouded in mystery. On every hand we behold evidences of a material universe of which we ourselves constitute but an insignificant fraction. We know that there are vast worlds and systems of worlds in space. We observe the earth composed of land and water, varying in its surface and undergoing modifications of form, immense changes occurring even in a single generation. We see myriads of plants of all forms and sizes springing forth from the ground, blossoming, and then falling into decay. Under our eyes are millions of animal beings possessing the characteristics of life and motion. All of these wonderful things

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we designate by the term nature, and you see what a vast significance that word possesses.

But our reason, itself a form of expression of this omnipresent force, is so constituted that we must find a cause for all these manifestations. These phenomena must be the result of something, and that very something, it has been the aim of the human intellect, since the human intellect has existed, to discover. This attempt has been the mainspring that has moved human intelligence from the earliest ages. The first or original cause is something that will never be arrived at, and is a matter of useless speculation and conjecture. Sufficient for us that certain phenomena exist whose immediate explanation is to be sought. It is the understanding of these causes that constitutes to-day the study of nature, and it was the endeavor to comprehend them that formed, in the days of the Egyptians, the pure and unmodified worship of Isis.

To lift the veil from nature is to-day the highest and noblest aim and ambition of the human intelligence, just as in long past ages it was the acme of perfection to reach the highest position in the worship of the mysterious goddess.

It is apparent to the most superficial reader of history, that the study of nature has always been proportionate to the degree of civilization. Natural science and civilization have gone hand in hand, one promoting the other and then reacting, both being at one time the cause and at another the effect. In the progress of intelligence, it became evident, after many centuries of fruitless groping, that the cause or causes of all the wonderful phenomena of the universe, could not be arrived at by a single leap. To believe that all these manifestations are the result of a solitary, all-pervading, mysterious, unknown and unknowable power, and to seek no farther, was extremely unsatisfactory. Special causes for special phenomena must be sought for. This fact understood, knowledge accumulated fast, and men began to comprehend nature, though very imperfectly. As facts were gathered, others were continually added to the store, until it became necessary to divide natural knowledge into departments. It would take too much time here, and perhaps be foreign to our subject, to discuss

the divisions and sub-divisions into which the study of nature has been separated. It is only within modern times, however, that natural science has been properly cultivated; but during the last century the progress has been so great that boundaries are well defined, and seekers after truth have at the present time even been converted into specialists of a more or less narrow groove. Each one, however, contributes his share of facts to the general whole, and all take part in that sublime pursuit whose object is the uplifting of that mysterious veil. The highest truth that is to come will only be reached by the method of questioning nature, and not, as some would have us believe, by the solution of metaphysical problems. How exalted then is the humblest of those who devotes his energies to the pursuit of natural science in any of its branches.

Perhaps the noblest of all these sub-divisions and the one from which most is to be expected, at any rate the one most interesting to us, is the science of *Biology*, that science which has for its object the study of *life*—how it is produced, and what are the conditions of its manifestation on the earth. It comprises, as you see, all living matter, whether vegetable or animal, for the principal of life is the same in both kingdoms, and all varieties of form, size, or habit, are but modifications of the vital principle produced by differences in conditions and surroundings.

The scope is so extensive that we must again sub-divide, and naturally we must study plants and animals separately. We are, then, now narrowed down to the particular study of animal life. But still the science is of such vast proportions that in a single life-time one individual could hope to cover but an insignificant portion of the entire field, so we are obliged to restrict our attention to a comparatively small department, leaving the rest to the observation of others, though we all combine our results to form the general totality.

We have then, centered on the study of the highest types of life; and as an off-shoot from this, the methods of best preserving life, and of restoring the animal to a condition of health when it has become the subject of abnormal or morbid conditions, become legitimate objects of enquiry. It is this that constitutes

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medical science, and as the conditions of life are so complex in the higher and highest types, its scope is of truly vast extension. Indeed, when we contemplate the immensity of the territory to be traversed in this one and seemingly small department of natural science, the gaze becomes dazzled, and the heart discouraged. The horizon looms but faintly in the distance, and like the mariner on the shoreless ocean, though we continually steer toward the point where sea and sky seem to embrace, yet we are ever as far off.

The science of medicine, though itself so wide in its range, is but a subdivision of biology; for how can we know what are morbid processes without a prior thorough acquaintance with the normal conditions of existence.

Until a comparatively recent period, medical knowledge has been confined in its application to the human species, but now its benefits are extended also to the domesticated animals; for in the progress of civilization, it has been found necessary to human happiness to preserve them in that state in which they will prove of greatest utility. But just here, where the question of utility arises, is the point at which society is now making a great error. It was certainly practical utility that first pointed out the necessity of veterinary science, but practical utility is not the only aim. Viewed solely from this standpoint, veterinary medicine would be merely an art, and that of a comparatively low character. It has been considered as such, and is, to tell the truth, practiced in such a manner at the present day by most of its practitioners as to justify the conclusion. But properly regarded it is much more than an art. It is a science in the highest acceptance of that term. It is but a specialty of medical science, which in its turn comes under the head of biology, and this again is but a branch of natural science; and the prosecution of natural science must be considered as the noblest pursuit of humanity.

It was to show this connection that, a few moments ago, I endeavored to outline briefly the evolution of science from its very origin, and a few of the ultimate causes of this growth. Though it may have seemed irrelevant to treat the subject in such a manner, I deem it of such high importance that veterinary sciences should

be clearly recognized among the family of sciences to which it belongs, that I could not trace its genealogy too far back. Though it is a very young member of the house, it belongs to the most honorable and ancient of families. It must therefore support the dignity that falls upon it from its lineage.

If veterinary medicine has hitherto been looked upon with a certain amount of disrespect, and it cannot be denied that this is the case, it is not for the reason that the study in itself is unscientific or one unworthy of the attention of the highest grade of intellects. It is simply owing to the fact that its true character has not been properly set forth and recognized—that the requirements necessary to its intelligent study and practice have not been duly appreciated. Few of its practitioners, especially in our own country, have regarded it as anything more than an art, and most of them have been guided solely by empiricism, which is so dangerous when unfounded on correct principles, in lack of proper scientific culture.

In view of this evil, then, what is it that is needed to exalt the profession to the elevated rank in which it belongs by just right? Not alone that it should be practiced with apparent success; that its professions as to being able to cure this disease and to alleviate that one, to restore to soundness a crippled animal and so on, should be verified. This is not sufficient. A great deal of this may be done by empiricism or by chance. It is necessary it should be cultivated for its own sake in a true scientific spirit, more than heretofore. Not merely in view of practical applications, though these will follow, but for itself as an abstract science. In other words, practical utility may safely be left out of sight for a while, and the science cultivated simply for the abstract and seemingly unpractical truths that it will yield. This may seem fanciful and devoid of useful results, but it is certain that benefits, which may not be clearly seen, would follow.

Has not the science of astronomy been studied in a purely abstract manner? Yet what important, yes, inestimable results have accrued from it to civilization! Where would be the boasted commerce of the nineteenth century if we were not enabled to take our latitude and longitude, and find the position of a ship on the

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beaconless ocean to within an eighth of a mile, by methods that astronomy has taught us? Where would be our means of so accurately measuring time, of such incalculable advantage to us, had it not been for the pursuit of astronomy simply as a means of seeking truth for its own sake? The practical results derived cannot be measured, yet did Copernicus, Kepler, Newton, Herschell, or Laplace think of them when they made their grand discoveries? The science of geology has been studied with the view of learning the true history of the earth from a scientific standpoint, yet has it not unfolded sufficient mineral wealth to compensate for the time and labor spent in the discovery of abstract truth? Chemistry and physics have been followed for the sake of the grand secrets they might yield to pure knowledge, but does not every useful art or industry existing owe something to them? Did Galileo, Marriotte, Boyle, Avogadro, Lavoisier, Priestly, Davy or Tyndall dream of the practical results of their investigations, pursued purely for the love of truth? Who would have believed that Newton and Young, studying the laws of light, would eventually prepare the way for Daguerre, Draper, and photography. When Galvani and Volta were conducting their primitive experiments on electricity, with the legs of a frog and a bit of metal, did they have the vaguest presentment that they were the pioneers of Morse's electric telegraph, the Atlantic cable and Edison's electric light? Or did Vesalins think of what would follow when he practiced his first dissection on the human body, alone in his attic, and knowing that at any moment he might be discovered and condemned to death? When he thus laid the real foundation of practical anatomy for the sake of anatomical knowledge itself, did he dream that Hunter would dissect out any artery at will, and ligate it in its course for the cure of aneurism, or that Valentine Mott would tie the arteria innominata?

But there is no necessity to multiply examples. It is clear that to raise a science to its true position it must be cultivated to a large extent for its own sake, for the purpose of learning what abstract truths it may yield. Although these facts may seem of no practical utility for the time, they will not always remain barren, but be productive of abundant harvests. In veterinary science

it is the same. In it, as in others, truth must be pursued for its own sake, and not entirely as a means. The practical results may not for a time be obvious, but they will inevitably follow. At once, a twofold result is accomplished, for the science is advanced to its proper station of dignity.

But the question arises, how is this condition to be brought about? How is the science to be cultivated in this way? The answer is plain. It devolves entirely upon those who enter upon its study. It behooves that they should be actuated by the true scientific spirit, that they should be fully impressed with the requirements necessary for the pursuit of scientific investigation in general, and with what veterinary science, regarded in its proper light, demands in particular for its especial study. When those who practice it are animated by these sentiments, then will it proudly take its true station. Then will veterinary science and veterinarians receive the honor due to the position which they ought to occupy.

As these requirements are so important, so vital in their nature, perhaps it would not be amiss, as briefly as possibly, to point them out.

In the first place, then, a preliminary good education is of prime necessity. The mind should be already trained to correct habits of reasoning. It is not so much the amount of knowledge that has been acquired in a previous course of study, though certainly the more the better, as it is the character of the mental discipline that has been obtained, the habit of mind that has been unconsciously formed. Would you ask a person to sit down to the piano and play a composition of Beethoven, who had not been thoroughly drilled in the proper use of his fingers? Then would it not be as futile to expect a person to follow closely and understand such a line of reasoning as would be required, for instance, in explaining the result of a particular valvular lesion of the heart, whose mind was not accustomed to such close trains of thought.

Scientific methods must be thoroughly familiar before the facts which are their results can be duly appreciated. But these methods require for their apprehension a certain amount of mental culture. Not because they are, in their nature, different from the methods

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of thought of common life. They are in the end the same, except that there is more precision, and it is preciseness that is required. In ordinary life we use our common sense carelessly and unconsciously; in science we use it with careful exactitude. A simple analysis of any scientific problem suffices to show the similarity and the difference. If you were to go home from here and find that certain articles, which you had left in particular places in your room, were turned or moved from their position, your common sense would tell you that some one had been there in your absence and disturbed them. If you did not expect anyone, you would naturally endeavor to find out who it was, by enquiry. By the very same process of reasoning Adams and Leverier, independent of each other, made their grand discovery of the planet Neptune. They were engaged in observing Uranus, which, according to the established law of gravitation, should have been in a certain place in the heavens at a given time. It was not there, it had been disturbed from its position, and consequently something must have caused this disturbance. According to the same law, another body of a certain magnitude and position would be an adequate explanation of the perturbation. They inquired for the cause, and looking at the point predicted, their assertions were verified, and the new planet discovered.

The actual process of reasoning involved in the two cases is identical, the conclusion is arrived at by the same method, but in the latter instance there is a careful precision. Scientific methods are essentially scrupulously exact; they therefore require exact minds to follow them. Exactness can only be attained by a careful process of training. This kind of mental culture, like the result of any other species of discipline, is not an inborn characteristic; it requires time and labor for its development, and should be the chief object of general education, aside from the special facts that such education affords.

An untrained mind sees nothing beyond the object before it. A trained one sees something more than this, and is perhaps able to form a theory as to what is its nature, and how it got in such a position. If a common workman was digging in a field and his shovel turned up a piece of old bone, he might perhaps recognize

it as a piece of bone, but that would be all he could tell you about it, or that he would have the curiosity to know. But let a Cuvier or a Huxley examine it, and he would from that alone be able, perhaps, to draw accurately the entire skeleton of some extinct animal. Not only that, but he might inform you how and when it got there, though it were tens of thousands of years ago.

A mind without good previous training is unable, at a single step, to cope with the subtleties and delicate questions of science. Natural intelligence may be never so clear, quick, and apt, but if it be not disciplined to exact and methodic processes, it must fail to understand and appreciate the simplest problems of biology. I repeat, it is only education of the mental faculties that can produce these habits.

When I say then, that a good fundamental education is a prerequisite to the intelligent study of veterinary science, I mean that the faculties must have been already amply trained. I do not insist that a man should have read Cicero, Horace and Virgil, or that he should be technically acquainted with logarithms and the calculus—though it would be of priceless advantage—but he should exhibit enough knowledge to show that during its acquirement, the mind had undergone a considerable amount of discipline.

No one will dispute the immense advantages to one who is prepared in this way to enter upon the study of this profession; but those who are already in its ranks, and regard it as an honorable and scientific pursuit, owe it to themselves and to their profession to insist that such previous preparation should be a *sine qua non*. Perhaps the time is not yet ripe for such a rule to be effectually enforced, but we hope it is not far distant.

A preliminary education of this description is absolutely necessary for the prosecution of scientific investigation in general, and now we may refer to what medical science, including of course the veterinary, requires particularly.

To understand life, health, and disease, requires a knowledge of the conditions under which these phenomena are produced. The vital manifestations are the result of constant chemical and physical changes. Indeed, it is the constancy of these occurrences that distinguishes animate from inanimate objects. No

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life occurs without the incessant repetition of these changes, hence it is evidently necessary to know what they are, and how they are produced. An acquaintance with the laws of chemistry and of physics must therefore underlie all study of vital manifestations.

A few illustrations would perhaps show this most clearly, and point out the intimate relations and dependencies that exist between these sciences and the science of life. Of what, for instance, does the whole process of nutrition consist? It is from beginning to end composed of a definite series of chemical phenomena. The body is a sort of laboratory supplied with all the various reagents for solution, analysis, combination and decomposition; with crucibles, retorts, and furnaces in which these operations are conducted. The study of digestion in the higher animals is almost entirely a study of chemical changes. The food that is ingested cannot be appropriated directly, but must undergo certain modifications before it can be absorbed and become a part of the body. The starchy foods are, from their nature, insoluble. They are first converted into sugar by the salivary and pancreatic ferments, and when thus altered are dissolved and absorbed by the blood vessels. Albumen is insoluble. When it comes in contact with the gastric juice which is poured into the stomach, it is converted by the pepsine of that fluid into albuminose or peptone, and is then ready for absorption. When these substances are circulating in the blood they meet with oxygen, which has likewise reached the body from an external source, and there a process of oxidation takes place, resulting in the production of heat and energy, just as oxidation outside the body causes the same effects.

The laws of physics bear a no less close and demonstrable relation. The conversion of liquid water into vapor by means of heat is one example. How otherwise could we explain the evaporation of water from the surface of the body in the form of perspiration? The process of respiration is another instance. The diaphragm and intercostal muscles contract, and together expand the cavity of the thorax; then, on account of the atmospheric pressure, the air must enter the space which else would be

a vacuum. That the atmospheric pressure exercises the greatest influence in this process is easily observed, for where the air is rarified and its pressure diminished, as is the case at a high altitude, the chest expands more fully and a larger volume of air is aspirated into the lungs at every inspiration.

And so we might adduce instance after instance, but these will suffice. Yet, since I have only spoken of these simple and well known examples of the application of the laws of chemistry and physics, it might seem at first sight that the relation was limited, and that a superficial acquaintance with these laws would be sufficient for the comprehension of all physiological problems. Nothing could be farther from the truth. These laws have an infinite application. The most intricate vital manifestations can only be explained by a reference to them. They all have a chemical and physical basis. Even the most complex phenomena of the nervous system may be interpreted by their means. The highest and most subtle of all, the very process of thought and ideation, has, as to its immediate cause, some chemical or physical change, or both combined. Alexander Bain and other philosophers of his school have even pointed out with an accuracy, which, if it be not absolute, is certainly very probable, how a chemical and physical change may be transmuted into a distinct, living idea.

But I think I have said enough to convince those most unwilling of conviction, of the great importance to medicine of the study of chemistry and physics. A knowledge of these branches should properly be obtained in the preliminary education, and they should be thoroughly acquired before the student commences his more special studies. They should not really have to be included in the medical curriculum, but unfortunately we find very few who come so well prepared, and so they have to be taught side by side with the more directly practical branches.

Is it requisite that I should dwell at any length upon the importance of the study that should come next in order, that of comparative anatomy? Its necessity should be so obvious that one would think its mere mention would be sufficient, and yet it is not so. Students are in such haste to learn how to recognize disease and to cure it, especially the latter, that they often sadly

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neglect this fundamental branch and gain but a superficial knowledge of it. But what a grievous error this is. How can you expect to know, when a body is out of order, where the difficulty lies, if you are not thoroughly familiar with the structure of every minute portion of that body? In the most ponderous and intricate machine, a single particle of dust clogging some obscure and seemingly unimportant cogwheel or pinion, might stop its action entirely. One part is so intimately connected with another, and the harmony of working of the whole depends so much upon the integrity of each particular portion, that the most minute spring or wheel becomes as important as the largest. If you owned such a piece of machinery and it suddenly stopped working, whom would you send for to start it into motion again? The man who fed the furnaces that gave it the power, or the skilled mechanic who was familiar with every detail of its construction, and knew exactly where to find the spot in which the damage had occurred?

But the animal body is a machine of vastly more intricate and complex construction than any that was ever invented by a human brain. Its springs, its pinions, its wheels, its joints, and its furnaces are so delicately constructed, and act in such beautiful harmony, that the most insignificant become of weight when its action is deranged. And is the living organism any less valuable or important than a mere machine made of timber and steel, that its construction should be any the less perfectly understood before it is tampered with?

A general idea of external form is not sufficient, as some seem to think. There must be an accurate knowledge of all the details which that form contains. One who is satisfied with the former, is like a person standing on the outside of some museum that contains a wonderful and valuable collection. He admires the grandeur of the building or the beauty of the architecture, but to get a perfect idea of the wonders that it contains, he must go inside and examine its contents carefully and individually.

The study of anatomy is the key to the workshop of the animal body. The various anatomical structures are the implements with which nature works out all her marvelous vital phenomena,

Having then gained a knowledge of these tools, the next step is to enquire into the functions that they perform. This constitutes the science of physiology. When all of the various organs of the body are performing their offices perfectly, and in harmony with each other, when the proper equilibrium between them exists, we have a state of health. Physiological investigation has for its object the ascertaining of the conditions of the state of health. When we are informed of these, we are enabled to perceive when any aberration occurs; in other words, we must first thoroughly understand what is health, before we can form any conception of a state of departure from it which constitutes disease. The importance of this science is so obvious, that it seems to me it would be a disregard to your intelligence to make further comment.

These, then, are the fundamental sciences. Chemistry, Physics, Anatomy and Physiology are the groundwork on which the superstructure is to be erected. According to the depth and solidity of the foundation, the magnitude and durability of the house will be proportioned. If it be not well laid, the edifice will surely totter and tumble into ruin.

When these studies have been mastered, it is time to turn the attention to those that aid specially in the discernment and treatment of disease—Pathology, Surgery, Practical Medicine, and Therapeutics. These form the stones of the arch, of which anatomy and physiology constitute the keystone, the central point around which the others cluster.

A knowledge of all these constitutes the *science* of medicine; putting them into practice is the *art*. But take care that in following the art, the science that underlies and directs it is distinctly held in view, or it will soon degenerate. The consciousness of using the science is what distinguishes its possessor from the mere empiric who never seeks deeper than the film upon the surface. Empiricism never rises higher than its past experience; scientific art has a boundless expanse before it. It interprets the experience of the past, it gives meaning and hope to the future. Be not the empiric, but love science for its own sake, and practice the art animated by the scientific spirit.

Science is the weapon put into your hands for the warfare against disease and destruction. Use it not blindly, as the awkward savage wields his ponderous club, but skilfully as the cultivated swordsman dexterously thrusts his polished blade. Not only in the long run, but in every individual case would the latter vanquish the former in an encounter, other things being equal.

Fully armed and equipped with this weapon, you are ready for the battle, and may challenge with the fullest confidence the competition of any who enter the field with other arms.

Let the attainment of true scientific culture be the principal end in view. In this way only is true professional standing and dignity reached. Remember that veterinary science is but one department of natural science, and that the study of nature is the noblest occupation of the human intellect. You belong to the grand army whose pursuit is the tracing of that mysterious thread, that winds through labyrinthine paths, whose exit lies at the end of the yet unpenetrated wilderness of nature.

I told you in the commencement of my discourse, that though thousands of years have elapsed, we are still in the position of the ancient Egyptians. Our idol is still the mysterious goddess who personifies nature, and our object is to lift the drapery from that face whose features no mortal yet has seen. Here we are assembled in a temple built in her honor and devoted to her worship. It is not so lofty or magnificent as the temples of old, but still we may find that within its walls our worship may be devoutly pursued. Our faculty are the priests who attend to the performance of her rites, and are ready to instruct novitiates in the duties that those rites require. You are the devotees who, feeling yourselves moved to pay your devotion, have come to receive instruction in the methods which that homage demands for its proper performance. You have to undergo an arduous apprenticeship that requires some sacrifice, but when you possess the secrets reserved for those who are deserving of being received into the upper circle of the fold, you will feel amply compensated for the difficulties conquered in the accomplishment of the task.

## MEDICAL ART AND SANITARY SCIENCE.

By E. MINK, V.S., ROCHESTER, N. Y.

*(Read before the Rochester Veterinary Medical Association.)*

We think it would be difficult to find, in the present day, a medical man of conceded intelligence and observation who would deny the utterance of Dr. Dixon some years ago, to wit: that "Nature is ever busy, by the silent operation of her own forces, in curing disease. Her medicines are air, warmth, food, water, exercise and sleep. Their use is directed by instinct; and that man is most worthy the name of physician, who most reveres her unerring laws."

Great progress has been made during the last few decades in what are called the exact sciences. Yet we think it will be generally admitted that a corresponding progress has not been made in the rational treatment of disease. In most cases that terminate favorably, an undue estimate is placed on the remedies used by the attending physician, while the force which nature exerted in effecting the restoration is underestimated or entirely overlooked.

For the general patronage which empiricism and all irrational methods of practice receive, medical men of the past and present are themselves much to be blamed. To a great extent they have played on the credulity of the people, by allowing them to attribute to the medical art, without attempt at correction, an importance in the cure of disease it does not possess.

Had medical men made the efforts they should have made, during the many years they occupied positions of prominence and influence, to enlighten people in regard to the measure of merit that should be accorded to nature and art respectively, the superstitions and absurd credulity that exists among people so generally in regard to the transcendent power of the medical art to cure disease would be unknown; and in its stead would be entertained a rational conception of the real power each exerts.

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It is not strange that such credulous ideas prevail when we consider the lack of trust in nature shown by many medical men. Few have dared or even cared to trust acute disease to the restorative powers of nature. And it is in this form of disease that the medical art has been accorded the merit of having exhibited its greatest usefulness. The few brave and honest physicians who have dared to practice in accordance with convictions, have proved to observing and thinking minds that the conservative and restorative forces of nature, when attended with favorable hygienic and sanitary conditions, are alone equal to removing disease and restoring health in nearly all curable cases.

Many medical men, when called upon to treat a case that terminates in restored health, seem willing and anxious to take the credit of having obtained the result solely with their artificial remedies. While it may be a pleasing thing for them to receive such an undue award of merit and encourage them to favor a continuance of the fallacy so generally believed, in regard to the wonderful efficacy of artificial remedies, they should remember that this same fallacy renders them liable in cases that result unfavorably or fatally, to the charge of lack of skill or misapplication of remedies, a charge that might be as undeserved and unjust as the undue merit given them in cases that resulted favorably. For our part, we think it important that a just estimate should be accorded to the force each exerts.

If truth demands that the medical art should lower the importance it has claimed for itself, it will also demand that sanitary science shall come to the front. And in this useful science medical men will, and must of necessity act the most conspicuous part. The part they are called upon to take in this important science will entitle them to all the honor that is due to great usefulness in the prevention of pain, misery and death.

Sanitary science has for its special object the prevention of disease, while the medical art has for its special object the curing of disease. The two may be considered as branches of one grand domain of science, the science of the laws of health.

In order to form a proper estimate of the importance of sanitary science, let us consider briefly the magnitude of its field of

action. The first grand demonstration of the prevention of disease was that of Dr. Jenner when he discovered and put in use the means by which one of the greatest pestilences known can be controlled—vaccination.

Previous to his discovery ninety-six deaths in every thousand in England were from small-pox. Shortly after the proportion was reduced to thirty-five per thousand. Now, when small-pox appears in any community, the proportion of deaths will be an indication of the extent to which Jenner's discovery is applied to control it. Another great measure to prevent the spread of disease is the system of quarantining adopted by commercial nations. In this way the spreading of leprosy, cholera and other plagues have, to a great extent, been prevented. It is also the province of sanitary science to suppress the generation of disease, as well as to prevent the spread of it.

It is plainly seen that to prevent disease is to preserve lives by thousands and tens of thousands that would otherwise fall victims to pestilences that stalk at noon-day.

The importance of the curative art sinks almost into insignificance when compared with it. In most of the great plagues of the present, such as yellow fever, cholera, etc., the curative art steps in with its remedies and applies them with anxious and humane, but comparatively impotent hands. It sees the victims of disease suffering and dying by thousands, and can do but little more than ease their way down to death. Clearly, then, the most important province of the medical profession is to prevent disease; and in proportion to the extent that it is successful, will be the measure of gratitude and fame that awaits it.

When it is seen, as Dr. Forbes says, that "the natural curative power is not one that operates merely occasionally or feebly, but one that is always present, ever acting and possessed of powers to cure the majority of diseases without assistance, then we think it must also be seen that a rational system of treatment must be one that will make due allowance for the force nature exerts in every instance." To overlook this power in the value of art, says Dr. Forbes, would be equivalent to that of a rower in a boat, who, in estimating the cause of progress in going down a

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stream, should make no allowance for the motive force of the current, but attribute his entire progress to his own exertion at the oars.

The medical man, in making this concession to the force nature exerts, does not compromise his profession. He simply assumes his true position, and this is one that entitles him to high consideration. His true position is not one that allows him to play on the credulity of people by allowing them to give him credit he does not deserve. He is not to be considered merely as a curer of disease and a dispenser of drugs.

And when it is known how little drugs, etc. can contribute to removing disease, then will it also be known that but little blame can attach to the true physician for unfavorable and fatal results. In cases where medicines or any of the appliances of art can be of little or no use, the true physician is still of indispensable importance. He occupies the position of adviser regarding the laws of health. It is his duty to look after the surroundings, to see that all sanitary conditions are favorable. The apartment the sick occupies, ventilation, food, clothing, water, etc., become objects of his immediate attention.

Now, nearly all that I have said in relation to the medical art applies to the veterinary art. Its most important field of action is in the prevention of disease. The veterinary profession has such huge plagues as rinderpest, epizootic apthæ, pleuropneumonia, the so-called hog cholera and others to contend with.

It is in sanitary science that the profession must win for itself recognized positions of honor; mere curing of disease and dispensing of drugs will not bring them.

With the efforts that are being put forth by such leaders in veterinary science as Liantard, Law, Large and others, we expect soon to see the veterinary profession ranking with the medical in general and in sanitary science. We expect also to see them equitably represented in the Boards of Health which will doubtless soon be established in every State of the Union and in every city of importance within the States.

In conclusion, we wish to remark that if the great mass of people were sufficiently enlightened to enable them to estimate

fairly the degree of force that nature exerts with art in the cure of disease, ignorant quackery, much of the heroic practice of the present, infinitesimal dosing—in brief, all irrational methods of practice would soon be consigned to oblivion, and in their places we should see flourishing a rational system of treatment based upon scientific knowledge.

## NECESSITY FOR CONGRESSIONAL ACTION IN RELATION TO CONTAGIOUS DISEASES OF DOMESTIC ANIMALS.

BY N. H. PAAREN, M.D., V.S., CHICAGO, ILL.

[From the *Prairie Farmer*, Sept. 27th.]

AMERICAN AGRICULTURAL CONGRESS, }  
ROCHESTER, N. Y. }

It is the intention by presenting the few remarks here roughly put together, to simply draw attention to the necessity of urging upon our Government the adoption of more energetic measures, with a view of preventing the spread of contagious diseases among domestic animals, and to provide for the enforcement of such measures, by establishing a National Veterinary Sanitary Bureau.

In the present status of veterinary science in the United States, and the utter absence of the most necessary sanitary laws and regulations, it is evident that proper statistics of diseases and mortality among domestic animals, are not obtainable. That the collection of such statistics must at no distant time be undertaken, all intelligent persons will admit. The attempts made by the National and the State Agricultural Departments to obtain these, are so inefficient as to fall short of the good they might accomplish; but the public good demands the adoption of proper and efficient means for obtaining a useful and timely knowledge of

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the prevalence of diseases amongst domestic animals. There are probably no means more likely to demonstrate the value of the veterinary art to this country than the publication of facts to prove how much it suffers from losses by disease amongst animals. It is much to be regretted that such a state of affairs should be said to exist; and it is very unfortunate that, instead of the question of preventing disease in stock, being freely discussed by farmers, it is never alluded to in their meetings or societies. It is quite evident that prevention is better than cure, and certainly far more profitable than to sell, or kill and bury diseased stock.

The various European Governments have long ago adopted ample means for obtaining a useful and timely knowledge of the prevalence of diseases among both man and animals. During more than a hundred years, veterinary science has been fostered by these Governments, and by their organized and successful labors, the members of the veterinary profession constantly prove how much the farmers and proprietors of animals in general are benefitted thereby. The prevention of diseases of animals is regarded as the business of these Governments; and the sanitary laws and regulations of each country are enforced with the utmost solicitude and punctuality.

It is the wonder of all civilized nations, that we Americans, with our boasted superiority in other matters of national interest, so utterly neglect this essential branch of agriculture. Here it is the business of no one to protect the lives of thousands upon thousands of dying animals, and the result is loss to the nation and ruin to individuals. The deepest ignorance prevails among the most intelligent people regarding disorders affecting the lower animals which are very common, and there is a tendency to seek for cures and specifics, whereas proper preventive measures would at once arrest such diseases. Many disorders prevail to a considerable extent, with the true nature of which nobody seems to be acquainted, and the existence of which is only casually learned through official sources. It is well known to the medical profession that there is a remarkable connection between certain diseases in man and the lower animals; and it is certain that many severe attacks of disease in man can be traced to unwholesome animal

food, and to the congregation of diseased animals, especially in crowded cities. It has affected the health of the people to an extent becoming appreciable the more the subject is investigated. The importance of the subject, however, demands the same regular, systematic, and constant investigation that is devoted to human maladies. If stout-constituted animals can be demonstrated to be dying chiefly from preventable diseases, it is evident how much would be saved to the farmers and to the nation, by reducing the mortality to a minimum.

In my remarks concerning veterinary sanitary reform, read before the National Agricultural Congress, at its meeting in Washington, I made reference to the great scarcity of competent veterinarians in the United States; and I feel constrained to repeat that the immense losses among live stock in this country, is greatly to be accounted for in the absence of a sufficient number of men who have been thoroughly and scientifically educated in this branch of medical science. That the great multitude of intelligent farmers and live stock owners in America should be obliged to contend with quacks and charlatans of the lowest description, while all other civilized nations (some of them as far back as a hundred years ago), have been provided by their Governments with amply endowed veterinary colleges, is beyond all sound reasoning—is, in fact, nothing less than a national disgrace, and justly merits the derision of other nations.

Glanders and farcy have prevailed, and prevail to some extent here and there in all of the western states and territories, among horses and mules; more so than is generally known or suspected. The importance of stringent legislation for the extinction of these twin diseases, is evident to any one at all acquainted with the dangers attending their unlimited spread, and their total incurability.

Among horned cattle, the contagious pleuro-pneumonia has, during the past year, thanks to the British Government, received a *forced consideration* by our Government, and some headway has been made towards its extinction; but, as yet, no laws have been enacted by Congress for the purpose of preventing its spread from

one State to another, or over the whole United States. This disease has been in our country a considerable number of years. If proper means had been adopted at the time of its incipency, we should never have seen it again, except by new importation; and until proper measures are taken, or Congress enacts laws in relation to trade and traffic between the States of the Union, we shall continue to suffer from it. One of the greatest sources of the spread of this disease is the unrestricted trade and traffic in cattle. Were proper precautions adopted in this direction, within certain limits, and within each State, and a thorough stamping-out process inaugurated, we should soon cease to hear of the contagious pleuro-pneumonia. The invasion of a district or country by pleuro-pneumonia contagiosa is insidious. The disease commonly escapes observation as it steals into a farm or country, and is consequently perhaps more destructive than any other known epizootic disease. Wherever the diseased animals have been slaughtered early, as in some European countries, the disease has not spread; but where months have elapsed before measures have been adopted, it has insinuated itself into many parts of the country, and has proved most destructive.

So much has been written in the public press on the subject of contagious pleuro-pneumonia, its extent and prevalence in our seaboard States, that it is unnecessary here to refer further to this subject than to suggest the adoption of more stringent measures for the thorough extermination of the disease from our land. The practice of inoculation provides only a fancied security, and should not be entertained for one moment, as it will be a certain means of promoting the spread of this disease. The stamping-out process is the only effective method of ridding the country of this pest; but it must be admitted, greatly to our disadvantage, that the progress of extermination is, in some of the affected States, apparently conducted in a very dilatory manner.

There have been several instances of severe losses among cattle in the State of Illinois, from the Texan cattle fever, occasioned by the transportation of cattle from the Gulf States, during the summer months, in defiance of the law forbidding such transportation between the months of March and October. These

losses have occasioned several law suits for heavy damages, by a number of farmers and cattle raisers. As a result, the Supreme Court of the State of Illinois has lately decided that the law for bidding such transportation of Gulf cattle, during the summer months, into the State of Illinois, is unconstitutional because the constitution of the United States reserves to the General Government the power to regulate commerce between the States. It is evident then, that in order to prevent a recurrence of the panic that ensued in 1868, the attention of the National Government must be called to this matter, with a view of having such protective measures enacted as are within its province.

In all parts of our country, tuberculosis is steadily on the increase among our cattle, and especially among the Shorthorns. Various forms of anthrax disease, especially the so-called black-leg and splenic apoplexy, have prevailed among young cattle. In various parts of Texas, Nebraska, Kansas, Missouri and Illinois, cattle have been affected with enzootic ophthalmia.

Among sheep the prevailing diseases have been foot-rot and scab. Some restrictive laws are wanted to prevent the trade and traffic in such diseased sheep.

The diseases of swine, most prevalent, have been carbuncular angina, and so-called hog cholera. The scientific investigation into the causes, nature and treatment of hog cholera, conducted under the direction of the Commissioner of Agriculture, have resulted in the discovery that medical treatment of this disease is useless, or at least profitless, and that remedial treatment must be one of different and improved surroundings, and bettered conditions of life and living in every respect. It is evident that, in order to protect the interests of owners of swine, as well as the public at large, measures of a stringent character must be instituted by legislative enactments, not only by each and every State, but by the General Government, with a view of preventing the spread of this plague, and finally eradicating the same from our midst. Restrictions should be put upon the trade and traffic in hogs, in the affected districts, with a view of preventing movements of such stock until a clean bill of health has been rendered by officially appointed veterinarians; and the reproduction and distribution of the con-

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tagious principle should be counteracted by a most thorough disinfection of the premises and grounds, and the provision of penalties against transgression of necessary prohibitory laws and regulations.

## EDITORIAL.

### SHALL WE HAVE A NATIONAL VETERINARY BUREAU?

It is a fact pretty generally recognized, that contagious diseases exist amongst our domesticated animals in this country to an alarming extent. The investigation instituted by the Agricultural Department into the "Swine Plague," the appointment by various States of Commissions authorized to eradicate from their territories contagious pleuro-pneumonia of cattle, and various other measures adopted for the purpose of renewing and increasing our crippled trade in the exportation of live stock, all indicate that the present state of affairs is beginning to be fully appreciated by the public, and as a result, the subject of a governmental organization is becoming a general topic of discussion in the columns of our leading agricultural papers. It is a subject which we were one of the first to strongly urge upon the public, as we have already mentioned in the pages of the *Review*, and we find our views endorsed by able agriculturists as well as distinguished veterinarians. One of our correspondents, Mr. Billings, lectured upon it before the New England Agricultural Society a short time ago at Worcester, and it finds a strong support in a paper from Dr. Paaren, of Chicago, reprinted in our issue of this month. It is also ably discussed by S. L. Boardman, Esq., in the columns of the *American Cultivator*, of Boston, of which paper he is agricultural editor, while it received marked attention from the members of the United States Veterinary Medical Association at their last anniversary meeting.

The establishment of a National Veterinary Bureau seems to be the general demand. But how this Bureau shall be formed,

and what disposition shall be made of it, are questions not as yet determined. Shall it be made a dependency of the Agricultural Department, an adjunct of the National Board of Health, or an independent department by itself, are the propositions made by various advocates who entertain different views as to proper organizations. They who believe in acting with the Agricultural Department, claim that the subject is one whose interests are closely allied to agriculture, and consequently that this department should direct the work. But while this is true in part—the relationship of the interests at stake—it must not be forgotten that the scientific investigation of the cause and means of prevention of animal diseases is a matter entirely independent of agricultural pursuits. Furthermore, it is very generally believed in most quarters, that under the present régime the Agricultural Department would fail to give such attention to the matter as the subject urgently demands. With many, and among them ourselves, the National Board of Health seems to be the most appropriate department of our Government with which to organize a special bureau such as is contemplated. When we consider the intimate relationship existing between many of the preventable diseases of man and the lower animals; when we recall the fact that disease-producing causes operate similarly in the different species, and that many of the special diseases of the brute creation offer questions of unequalled importance to the investigator of human ailments by virtue of the susceptibility of their transmission, we must admit the propriety of being associated with a department whose object is in exact consonance with our own, and the attainment of which is to be reached through the self-same channels.

But there are a few who advocate the formation of an independent Veterinary Bureau, unconnected with any department already organized, and while there may not be any insurmountable or even any serious objections to such a procedure, we much doubt if such efficiency could be obtained in labor expended, as would be guaranteed by the co-operation of the scientific members of the National Board of Health.

Important as these questions are in their bearing upon the

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probable results to be attained by the labor of such a bureau there is one vastly more important than all, and that is the *urgent necessity for immediate action*. Consternation may well be engendered in the minds of our cattle raisers when they review the ravages which *contagious pleuro-pneumonia* is making in several of our States, and remember that it is but a matter of conjecture how long it will be confined to its present limits. Others will be as greatly alarmed for the safety of their investments, by seeing the *swine plague* sweep through the land and in a single year destroy more than two millions of hogs. Our disasters, seeming never to come singly, are augmented by the appearance of *foot and mouth disease* in American sheep recently landed in England, and results in another embargo against American exports. Combine this with the rapid spread of *tuberculosis* among our cattle, the insidious and unchecked growth of *glanders* and *farcy* in our larger cities, and the lamentable frequency of *trichinosis* in our hogs, and a truthful picture is presented of the dangers by which we are daily beset. Fully appreciating the need for legislative interference by which to arrest these plagues, the United States Veterinary Medical Association at its last annual meeting appointed a committee to devise means by which the attention of Congress may be directed to the actual state of affairs at present existing, and to urge upon that body the propriety of instituting such measures as shall look to effectual and permanent relief. Longer delay in organizing a department whose duty shall be investigation of the causes of disease in the lower animals, and how they may be prevented, must prove a wilful neglect of a serious duty that threatens disaster to one of the most important interests of our country.

#### THE AMERICAN VETERINARY COLLEGE TO ARMY VETERINARIANS.

At the last meeting of the Board of Faculty of the American Veterinary College, an important resolution to veterinary practitioners in the army was unanimously adopted and recommended to the Board of Trustees. We call the attention of our friends in the army to the resolution, and hope that the generous and friend-

ly act of the Faculty of the College will be taken advantage of and may assist in elevating the veterinary profession in the ranks of the American military service.

#### ARMY VETERINARIANS.

For the interest of our army colleagues, we continue in this number the publication of Military Veterinary organization in the different countries of Europe, by presenting some extracts from the French service, relating principally to the number of veterinarians, their divisions, the mode of promotion, their rank, pay, and time of entering the retired list.

#### REPORT ON DISEASES OF SWINE.

We have received through the kindness of the Department of Agriculture, the special report on the investigation of diseases of swine, and infectious and contagious diseases, collected by a number of veterinarians and physicians throughout the different States. The reports are presented in the shape of a volume of about 300 pages. It is numerously illustrated and printed in an easily read type. It contains facts of very great interest to all those who wish to obtain information upon these diseases, and will be read by scientific men with pleasure and benefit.

PAUL BERT has just received the prize from the University of Edinburgh for the best discovery in therapeutics during the year. He has also had the luck to gain the case brought against him by a tender-hearted neighbor, who could no longer bear the cries of the animals brought under his knife in his vivisection experiments. The jury believing in "the cause of science," he was acquitted, his neighbor paying the costs of the prosecution.—*Monthly Review*.



## TRANSLATIONS FROM FOREIGN PAPERS.

## GOURME; OR, HORSE VARIOLA.\*

NATURAL AND IRREGULAR FORMS OF THIS DISEASE—INOCULATION AS A PROPHYLACTIC MEANS OF ITS COMPLICATIONS.

BY M. L. TRASBOT.

## I.

This title indicates the fundamental idea and the object of this paper.

To establish that distemper is the proper variola of horses, and to prove that all the accidents it may give rise to, may be prevented by inoculating the young animals, are the two problems I have tried to solve.

There is, perhaps, no disease upon which more has been written than the subject before us. All veterinary publications, journals, bulletins of societies, classical or encyclopedical works, contain numerous articles, often contradictory, upon its forms, its nature and its contagiousness. Nevertheless, it yet remains poorly known in its nature. Most of the authors continue to consider as fundamental, some phenomena which, properly speaking, are but complications; such as the catarrhal inflammations of the anterior respiratory tracts, the lobular pneumonia and even the lymphangitis and suppurative adenitis. Others have often taken some of its irregular manifestations for glanders and farcy; thus it is certain, that those pretended cases of flying farcy and facial farcy, whose cure is reported, were nothing but cases of lymphangitis or of strangles.

And again, work generally is considered as connected with strangles in young horses; all inflammatory affections of the throat and of the mouth, especially when they are accompanied with the

\*Strangles of the English.

formation of abscesses in the submaxillary lymphatic glands.

That this is true in many cases, none will deny; but it is no less incontestible that *simple* and *accidental* inflammations of the respiratory mucous membrane may also be accompanied in the young and vigorous animal with similar phenomena. This is simply due to the facility with which pus is produced in abundance in this species of animals.

And again, many veterinary writers separate from strangles, or at least seem afraid to connect with it the pustular eruption, noticed first by Jenner, under the name of *grease* or *sore heels*, which was overlooked for such a long period, and recognized again by Prof. Lafosse, of Toulouse, in 1860, described under the name of *horse pox* in 1863, by my eminent master, M. H. Bouley, and who made it the *essential* and *fundamental* fact, *natural* and *specific* character.

For several years, I have shown to a class of about one hundred and fifty students that there is no strangles without pustular eruptions. It is more or less developed, sometimes difficult to see, but is never missing. Every time it is absent it is not strangles which is present, it is a simple inflammation, not contagious by cohabitation, and not inoculable.

This short introduction is sufficient, I believe, to show how vague and uncertain is this question, already so often discussed, and to what extent the distinctive points of the disease is ignored and poorly described.

It is with the desire to find my way in this dark road that, by attentive observation and experiments of very numerous inoculations, the first amongst which dates back some fifteen years, I have tried to determine the proper name to be given to strangles from its nature and analogy to other affections; to tabulate what there is really known of its etiology; to distinguish amongst its external manifestations those which are proper to it; to isolate these from the phenomena, purely contingent, which are sometimes added; to discover the causes and their nature, and to prevent them as much as possible, or, at least, to regulate their march.

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from Soileysel down to our days,) to designate that disease, has no well known origin, or precise signification. According to Bescherelle, it comes from a Celtic word, *gôrmes*, and means simply pus. It is, indeed, often used with this meaning in human medicine, where it has been applied to many diseases of children which are accompanied by eruptions of the skin. It is with about the same meaning that it has been introduced into our medicine.

With all writers, hippiatric and veterinarians, who took notice especially of the most apparent external facts, strangles of the horse was a crisis characterized by an abundant suppuration.

With variations of details upon the interpretation of the phenomena, such was the opinion generally accepted by Chabert, Fromage, Brugnion and others. This name was in fact in accord with their idea of the disease. It had in fact the advantage, by its general signification, of not compromising the yet unknown nature of the disease.

Some fifty years ago, under the tuition of the so-called physiological doctrine, attempts were made to repudiate the name. Vatel, Rodet, D'Arboval and a few others considered strangles as a simple inflammation, a *rhino-pharyngo-laryngitis*, different from the ordinary angina by its extending to the lymphatic ganglions, to the lungs and even to the stomach. This was one of those unavoidable errors commonly made in natural science, when minds dominated by an absolute idea, try to form every fact upon it. This opinion, however, was soon put aside, or better, was never entirely adopted. It was too much at variance with the facts. The property that *gourme* possesses of transmitting itself to subjects previously free from its manifestations, always prevented it from being considered a simple catarrh of the respiratory mucosæ. It is true, that, to maintain their theory, the authors already named, and Delafond after them, refused to recognize its contagious quality. But such a large number of observations affirmed this purely doctrinal mode of appreciation, that soon older ideas were again admitted. Thus was the word *gourme* taken up again and preserved to our days to designate the disease in question.

The day will come, though, when it will be abandoned. Per-

haps it is already time to cease using it, for its vague signification is not sufficiently precise. A more expressive name would now be preferable.

First, it would conform to the actual tendencies and known processes, and besides it would be a means of removing the confusion yet existing between a specific and contagious disease and other accidental affections having resemblance only by certain accessory phenomena.

It may be said that the Italian expression *cinsorro* and the German and English names *strengel* and *strangles* are insufficient. The first is the translation of the word *gourme* and the other merely that of angina. These last being more restrictive, are yet more inexact, as they seem to assimilate *gourme* to a principal inflammation of the throat.

A proper denomination, better defining the affection, ought now to be employed. This is the first necessary condition to be realized. To denominate and define the same things in the same manner is always the surest way to avoid confusion.

In 1863 W. H. Bouley gave the name of *horse pox* to the pustular eruption of *gourme*. This expression constituted then a very happy opposition to the words *cow pox*, and indicated the origin so long and vainly looked for of the vaccine virus. No doubt at this time one could not see in the eruption in question the entire nature of the affection. This would have been a too radical revolution. In the observation of science, time is always necessary for the truth to develop itself.

For the question now under consideration, I feel satisfied that Mr. H. Bouley would not hesitate to recognize now in the eruption which he described as the complete natural form of the *gourme*, and to regard all that was considered in the part since as the nature of the disease as simple deviations caused by all the influences capable to interfere with the regular and normal evolution. And he would willingly give to the word *horse pox* the sense of *gourme*. The first would, even with advantage, take the place of the second.

Still I do not believe that it would be the best one, in the point of view of comparative pathology. In connection with its limited



sense, it is less in harmony with the nomenclature generally followed in pathology, and seems to isolate a special disease of an animal species from its analogues in other species. For that reason, I believe the gourme of the horse is *variola*.

The greatest part of this paper will, however, be used to establish on as solid a basis as possible, the truth of this claim, already advanced by Gilbert, Dietrich and others.

## II.

The *causes* of strangles have been lengthily studied in the treatises on this disease.

As for all contagious diseases, two etiological facts must be examined: the primary development and the transmission by contagion.

The first has not alone attracted the attention of veterinary authors. Most writers have given many pages on the subject. They have, with long detail, mentioned all the local causes likely to bring on disturbance in the equilibrium of the functions. In reproducing exactly the same condition, all have recognized that young age was a condition favorable for its development.

With a few, it is only between two and six years that the disease runs perfectly through in evolution. Earlier it would not have its character proper, and might reappear subsequently. Thus premature, it would not be sufficiently depurative to relieve entirely the organism of predisposition it possesses from birth.

All this, it is unnecessary to say, is purely hypothetical. If, indeed, it is incontestible that the disease is more commonly met in animals from five to six years, it is because at that age they are more unavoidably and for the first time exposed to contagion. At this time, indeed, they are sold to be transported, in raising climates, and are then gathered in various numbers in dealers' stables or other locations. During these changes they have been in markets, at fairs, in public stables, transported in railways, and have in many instances been in contact with diseased subjects.

Let but one of the animals be affected, which is too often the fact, and soon the disease extends to all those, which up to that

time had been free from it. Is not that the reason why horses recently bought are so commonly affected with the disease when they reach their new home.

All authors who have written on the ætiology of gourme, have, however, in repeating that young age is one of the causes of its development, remarked that animals kept in hygienic conditions similar to those in which they were raised, are protected from it. Mr. Zundel, for instance, says: "If horses remain in the conditions of hygiene, food and work similar to those in which they were born and raised, they often remain free from the disease."

The age of four to six years is then not sufficient by itself to give rise to the disease; and I repeat it, if it is frequent at that period, it is because animals are then more exposed to contagion.

As to the opinion consisting to consider equine variola as incomplete, premature in colts of six months to a year, because the change of constitution favorable to suppuration has not yet taken place in them, I have no hesitation to declare wrong. It is an assertion without proven facts. I have seen lately a five months colt infected accidentally by a variolous horse, and in which the disease developed itself in the most marked manner. Generalized eruption on the whole body, laryngopharyngeal angina with abundant discharge, suppurative lymphangitis forming a thick cord on the left side of the face, enormous abscess in the inter-maxillary space—nothing was wanting. On no subject could the disease have been better shown, and I have seen it in sucking colts with the same gravity in the symptoms.

It is then not exact to say that it must abort in animals less than a year old, and I feel certain that veterinarians practicing in breeding countries have, like me, seen it very serious in the youngest animals.

If upon animals from four to six years it often assumes an irregular form, it is precisely because they have been contaminated and become sick during the different journeys they were subjected to, being then exposed to change of weather, cold, rain, &c., &c., while being more or less in perspiration, and not because the critical age had arrived. It is surprising that the

union of these facts, so plain and well connected, has been so long overlooked. For, from the affection likely to be more severe in older subjects, as in the point of view of vital resistance, the advantage must be in favor of the older animals.

Another condition connected with the adult age, the growth of the permanent teeth, has been considered as the occasional cause of the appearance of gourme. M. Reynal says this is an opinion generally admitted. According to some practitioners, the condition that the growth of the teeth excites towards the superior chambers of the digestive and respiratory apparatus, is a condition, if not producing, at least exciting of gourme. This manner of thinking, with the idea that the disease is localized or limited to the head, cannot be sustained in our day. It is too well proved that the eruptions may take place over the whole surface of the body, to have like assertions discussed.

If quite often the localization takes place towards the head, it is because an exciting cause of angina has somewhat attracted the specific eruption toward that point. For the same reason that lately I have seen on four horses affected with cartilaginous quit-tor, the eruption manifesting itself in a confluent manner on the affected leg, the growth of the permanent teeth might act in the same way when the disease exists already, but it would not produce it.

Riquet has already discussed the opinion relating to the growth of the teeth, in saying when the growth of the teeth takes place beyond the other conditions of the development of gourme, it gives rise to no difficulty.

On this point, as in many others, it may be said that in place of well established facts, hypotheses have been accepted as satisfactory.

Emigration has always been named as the most efficient cause of that disease. In all papers, discussions, classic works, this opinion is reproduced under different forms.

It has been said that the transport of animals from one country to another without having their constitutions prepared for the changes of climate, quality of air, food, stabling, &c., &c., was sufficient to give rise to the disease. "Those serious and impor-

tant modifications," says M. Zundel, "no doubt produce a change in the proportions of the constituent elements of the liquids of the body, and in the nutritive functions, a change which is manifested by the critical manifestations of gourme." On what does this theory rest? On absolutely nothing. Is it not simpler and more in accordance with observation to look at the movings to which the animals are subjected as repeated exposures to the contagion?

To present this question, is sufficient to have it admitted by all unprejudiced minds.

It has been said that animals prepared for sale by fattening, were oftener and more seriously affected than others.

That they are sicker, it is true; heat in warm stables, lack of resisting power to external influences, render them undoubtedly more impressionable and give to all affections in them a more severe character, but that is all.

But that this produces gourme is doubtful, and has not been established by fact.

Lastly, another influence, the sudden cooling of the skin, has been considered as one of the causes of the disease. It is unnecessary to refute such an opinion. Arrest of perspiration by rains, drafts, &c., may prevent the natural development of gourme, interfere with or possibly prevent entirely its eruption on the surface of the body, and by this fact produce all the common variations that the disease may assume, from the simple angina to the lobular pneumonia; but it yet remains to be proved that they have the power to produce the disease.

To recapitulate, what remains of the etiology of gourme, as found in veterinary works? Nothing which resists the slightest criticism. Must we conclude from this that it can not rise positively in the organism of horses? No; such a conclusion to-day might be hazardous, and perhaps later on looked at as erroneous. The question must yet remain open, as we do not as yet possess any elements for its solution. Such is the truth.

*(To be continued.)*



## VETERINARY SOCIETIES.

### MONTREAL VETERINARY MEDICAL ASSOCIATION.

This Association held its first meeting for the session 1879-'80 on Thursday evening last, in the lecture room of the college, Principal D. McEachran in the chair, with a full attendance of members.

In his opening address the President briefly reviewed the past history of the Association since its formation in 1875. It was very gratifying to notice the continued and increasing interest evinced by the members in the meetings. He directed the attention of the younger members to the great benefit they would derive from their connection with the Association.

The papers read being always most interesting, and frequently on subjects not fully treated upon in the regular curriculum, were of great advantage to them all.

The library, containing as it did nearly 300 volumes, and many of them rare and valuable works, was always at their disposal. It afforded him great pleasure to be able to inform them that its numbers were constantly being increased by donations from the friends of the Association. Several volumes had recently been received from Dr. Fenwick, Dr. Liautard and Dr. C. C. Lyford.

In conclusion, he would state that the success of the Association had exceeded his most sanguine expectations, and he would urge upon the members the necessity of continued exertion to maintain its reputation.

The officers of the Association are: Dr. McEachran, F.R.C.V.S., Honorary President; Wm. Osler, M.D., L.R.C.P.L., President; C. J. Alloway, V.S., 1st Vice-President; Jas. Bell, M.D., 2d Vice-President; M. S. Brown, Secretary and Treasurer; and Wm. Jakeman, Librarian.

A vote of thanks was proposed and carried unanimously to

Drs. Fenwick, Liautard and Lyford, for their kind donations to the library.

The following gentlemen were nominated for membership: F. Torrance, Compton, P. Q.; A. J. Chandler, Coaticook, P. Q.; Messrs. Thomas and Skully, Boston, Mass.; Mr. Dunden, Salem, N. Y.; A. Glass, Philadelphia, Penn.; W. Wardle, Montreal, Que.

At the next meeting (Oct. 23d inst.) Principal McEachran will read a paper on contagious pleuro-pneumonia, a subject that at the present time is one of especial interest, not only to the members of the profession, but to all that are connected with the breeding and exportation of cattle, and Mr. M. S. Brown will communicate a case.—*Montreal Daily Witness*.

## REPORTS OF CASES.

### TRAUMATIC TETANUS.

BY WILLIAM CUTTING, V.S.

On September 13th last, in the afternoon, my attention was called to a bay mare seven years of age, belonging to Mr. Deunpelmans, suffering from traumatic tetanus. The mare ate her grain and hay at noon, but the stableman found a difficulty in getting the bit in her mouth, on harnessing for work. When I first saw her the membrana nictitans was passing backwards and forwards rapidly over the eye, and on raising the head suddenly, covered the eyes completely. I saw a wound on the near fore fetlock joint, and at once attributed the mare's condition to that as a cause. I afterward found that the mare had picked up a bolt in the outside of the off fore foot, between the bar and the frog, near the heel, ten days before this attack. The stableman dressed the wound, as it was thought to be of little or no consequence. This wound healed up, and the animal recovered from lameness, but the man who drove the mare thought something

was wrong with the eyes as far back as the 12th or 13th of September, but as the mare ate well and did her work well, thought but little about it. The mare being placed in my care, I led her a short distance to my barn. I put her in a quiet box. Cleaned thoroughly the two wounds, and dressed with the solid extract of belladonna. Gave her a cathartic ball, as well as I was able with a stick, as the mouth was closed within three-eighths of an inch. I stimulated each side of the spine with strong ammonia liniment, and applied a fresh sheep skin to the back, and covered it with a light sheet. Gave an enema of warm water and soap, and in the evening passed into her mouth a ball composed of soap and seed of

*Canabis indicus* - - 3 ii.

Solid Ext. Belladonna - 3 i.

and gave by the hypodermic syringe one dram of a solution of atropine, four grains to the ounce. I steadily gave the ball as above three times a day. The bowels responded mildly to the cathartic, and the mare lived till between one and two o'clock Saturday morning, the 27th, when she died. I also tried the action of tinct. nux vomica on the tongue, and from my friend Mink's suggestion, the fluid ext. of *conia maculatum*. This extract I gave in half ounce doses three times a day, per rectum. I gave considerable gruel the same way, besides which she sucked gruel and white water, but would not take milk. She was placed in slings the third day after coming to my stable. She ate some hay, boiled oats, carrots and green corn-stalks, but in small quantities. I saw no relaxation of symptoms from the time she came to my barn excepting once. Two days before she died, the lips became pliable, so that the animal could use them for a short time, and the eyes were less covered by the *membrana nictitans*.

At page 47 of the *Veterinarian* for 1855, Mr. James Turner, M.R.C.V.S., London, reported two cases of symptomatic tetanus that occurred in his practice. The first case, a racing mare of repute, "the Maid of Kildare," in kicking at a passing cab entangled her hind leg in the wheel and injured it badly. The case terminated by death the 13th day after the accident. A post mortem examination revealed this state of facts: Finding nothing

wrong with the nerve tissue he turned his attention to the vessels, commencing with the external pastern artery. "This to my surprise," he says, "I found plugged to the extent of an inch and a half with a tough fibrinous deposit of a pale straw color, firmly adherent to the lining membrane of the vessel. The artery was completely impervious, there being no channel left in the center of the plug. Upon laying open the corresponding artery over the inside of the pastern joint, the abnormal deposit was precisely the same, but the obstruction occupied a greater length."

In the second case the hind foot of the animal suffered a severe contusion, with laceration of the integument of the coronet, and slight ligamentous exposure. "Upon examination of the vascular trunks, arteries and veins, from the hoof to the hock, they were found unobstructed and completely pervious throughout, except the inner trunk of the pastern artery, which was obliterated through its whole length, from the hoof to the fetlock joint. The plug or obstructing medium was a white, dense, fibrous clot, firmly adherent to the lining coat of the artery."

Reading these cases, I was curious to see if any such state of facts existed in my case. So, on the carcass being taken away, I obtained the right fore leg, disarticulating it at the humero-radial articulation. On removing the skin I saw that the anterior portion of the pastern joint was bruised, the result, I thought, of pawing in the death agony. Posteriorly a number of yellow patches were present, one of them as large as a half dollar, and several smaller ones, likely caused in the same way. I carefully dissected the pastern arteries, the outside one from the hoof to its union with the metacarpal; the metacarpal artery I laid open its whole length, from the pastern to the humero-radial articulation. The vessel was empty, the lining membrane in a normal condition until I passed below the pastern joint, when I tried to pass a knitting needle, and did so, till I came to the branch artery passing in front of the suffraginous bone, the needle passing in the branch but not in the main channel. From the branch artery to the hoof, full two inches, the channel was impervious; the needle would not enter. There were several clots present adherent to the coat of the artery. First a black one, then a straw colored. There

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were three black clots, alternating with straw colored ones, a straw colored one continued to the foot, so that the inside pastern artery was plugged full two inches to the foot, the outside pastern artery was plugged fully four inches, first a black clot, and then a straw colored one down to the foot. The knitting needle I used was a small one, of not more than the thirty-second part of an inch in diameter.

Several things seem me to call for consideration in connection with the subject. Various causes have been pointed out as adequate to the production of tetanic spasm, among which are cold, heat, wounds, bruises, flattening and softening of the heart, the ravages of parasites, shocks to the nervous system and so forth. Amongst these causes may we include thrombosis and embolism as causes? Does tetanic spasm belong to that class of diseases called embolia? Science teaches us now, that fibrine is not a constituent of the blood, but that the elements that under certain conditions produce fibrine are constituents of the blood. Thus fibrine, when it does exist in the blood, is a foreign body, and has no business there. Can fibrine, when it is once produced, be ever restored to its original elements (fibrino-plastin and fibrinogen), which exist separate in the blood? I am inclined to think not, but that if the thrombus or embolus once formed, no known remedy has the power of restoring the blood to its normal condition. Of one thing I feel certain, that in every case of hoof or other wound, intelligent veterinary advice should be obtained at the earliest possible moment.

Every veterinarian of experience knows how rare it is for tetanic spasm to set in if the wounds are properly dressed early after the accident takes place. If this is correct, it would lead to the inference that some peculiar inflammatory action is the cause of clot in the arteries near the wound, and that this diseased condition of the blood is as likely to occur from the simplest as from the most complex wound or injury; therefore the most sensible thing the horse owner can do, in the event of his animal becoming wounded or injured in any way, is to call for competent advice at once.

## FRENCH ARMY VETERINARY ORGANIZATION.

DECREE ISSUED THE 14TH OF JANUARY, 1860.

Art. 1.—The number of military veterinary surgeons is fixed as follows:

Principal Veterinary Surgeons.....	5*
First           "           " .....	122
Second       "       " .....	132
Assistant     "     " .....	91
"       "       " (licentiates)†.....	20
	370

Art. 2.—The licentiate assistant veterinary surgeons are chosen amongst the veterinarians graduated from the veterinary schools, who, less than 30 years of age, have received good testimonials of instruction and moral character, and have satisfactorily passed an examination of admission before a special commission. They are sent to the school of cavalry to receive, during one year to the utmost, the principals of equitation, and be initiated in the practice of military veterinary medicine and to the regimentary duties. They are classified according to their order of merit, when admitted to the school.

Art. 3.—The places of assistant veterinary surgeons are given to the licentiates who, after the expiration of their time in the School of Cavalry, have passed a satisfactory examination concerning their fitness for the service in the army.

They take rank according to the number of classification of their examination.

The licentiates who fail in their examination are dismissed.

\* This number has been since increased to 10.

† Stagiaries—these are sent to the Cavalry School of Saumur.

Art. 4.—The second veterinary surgeons are named, half by seniority, half by choice, from the assistant veterinary surgeons having at least two years seniority in their service.

Art. 5.—The first veterinary surgeons are taken by choice amongst the second veterinary surgeons, having three years at least of service.

Art. 6.—The principal veterinary surgeons are named by choice amongst the first veterinarians, having four years at least of service in their duties.

Art. 7.—The licentiate assistant veterinary surgeons are named by the Secretary of War according to the regulations named in Art. 2, and after taking the engagement of honor of serving in the army for at least 6 years after their leaving the School of Cavalry.

Art. 8.—The veterinary surgeons of other ranks are named by the Emperor. The rules of the law of May 10th, 1834, on officers, is applicable to them.

Art. 9.—The rates of pay of the military veterinary surgeons is fixed as follows :

Principal Veterinary Surgeons . . . . .	4,000 francs.
First " " . . . . .	2,400 "
Second " " . . . . .	2,000 "
Assistant Veterinary Surgeons . . . . .	1,800 "
Licentiate " " . . . . .	1,200 "

Art. 10.—A first gift is made of 400 francs to licentiate for equipment, and a supplement of 500 francs to those who are promoted as assistants.

Art. 11.—Principal veterinary surgeons may be attached as chiefs of the veterinary service, to the staff of the army corps in campaign; they may be annually received missions, having for object the propagation of good methods of hygienic treatment, and to enlighten the War Department on general points pertaining to veterinary medicine, as well as on the scientific merit of veterinarians in the army, and establishing for remounting. One of them is specially attached for the education of the licentiate; the others form a consulting commission.

Art. 12.—In case of war or formation of new army corps, the number of military veterinarians will be increased as the circumstances require.

**DECREE ISSUED APRIL 30TH, 1875.\***

Art. 2.—The limits of the age for permission to retire, amongst principal veterinarians, is fixed as follows:

First Class Principal Veterinary Surgeons.....	62 years.
Second " " " " .....	60 "

Art. 4.—The principal veterinary surgeons of 2d class are subordinate to those of 1st class.

The veterinary hierarchy has no assimilation with the ranks in the army; however, concerning the privileges, they rank as follows:

The First Class Principal Vet. Surgeon after the	Lieut'nt Col.
" Second " " " "	Major.
" First Veterinary Surgeon	Captain.
" Second " " "	Lieutenant.
" Assistant " " "	Sub "

The composition of Courts Martial called for the trial of military veterinarians shall be the same as for the grades after which they take rank.

## ANSWER TO STUDENT.

In 1871 the organization of the French Veterinary Schools was modified by the division of the students into interne and externe, that is, those boarding in the school and those living out—

\* The principal veterinary surgeons by Art. 1st are divided in two classes.



side—and by the admission of free *auditors*, either French or foreigners. These were admitted without examination, and required to pay 50 francs quarterly in advance.

As we read and understand the privileges and requirements of these three classes of students, the free auditors enjoy the same advantages as the students as far as lectures and clinics were concerned, but they are not allowed to present themselves for the diploma granted by the council of the school.

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## SUNDRIES.

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### TYPHOID FEVER FROM DISEASED MEAT.

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An epidemic of typhoid fever, interesting in its ætiology, followed a musical festival at Zurich in May, 1878. Out of some 700 assistants, 500 were attacked by the disease, of whom 100 died. The symptoms could not be mistaken, and the autopsies confirmed the diagnosis. A minute inquiry into the circumstances left but little doubt that the epidemic was due to the use of bad veal furnished by an innkeeper of the place. It may be claimed by those who attribute to general causes the power of originating specific diseases, that the typhoid fever was due to a septic poison present in the veal, depending possibly on a beginning fermentation, which was not destroyed by the cooking to which it had been submitted. On the other hand, as the animal from which the meat was taken was sick, it may be asked whether it might not have been suffering from typhoid fever, although this disease has never yet been recognized among animals. It is a remarkable fact that in 1839 a similar but much less fatal epidemic occurred in a neighboring locality. After a reunion that took place under similar circumstances, 440 persons were taken sick with all the symptoms of typhoid fever. It is probable that in this case also the meat of a sick calf gave rise to the disease.—*Journal de Medecine*.

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EXCHANGES, ETC., RECEIVED.

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Bulletin National Board of Health, Hospital Gazette, Medical Record, American Agriculturist, Prairie Farmer, Live Stock Farmer, Ohio Farmer, Medical and Surgical Reporter, Turf, Field and Farm, Country Gentleman, Monatsschrift des Veriener der Thierarzte, Revue fur Thierheilkunde und Thierzucht, Bulletin de la Societe Centrale de Medecine Veterinaire, Gazette Medicale, Veterinarian, Veterinary Journal, Annales de Medecine Veterinaire, Journal de Zootechnie, Recueil de Medecine Veterinaire, Clinica Veterinaria, &c., &c.

LETTERS RECEIVED.—J. C. McKenzie, N. H. Paaren.

PAMPHLETS.—Investigation of Diseases of Swine and Infectious and Contagious Diseases.

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